(3.6.2)

$$V_{ACLM} = \frac{A_{bulk}E_{sat}L_{eff} + V_{gsteff}}{P_{CLM}A_{bulk}E_{sat}\,litl}(V_{ds} - V_{dseff})$$

Similarly, Eq. (3.5.7) now becomes:

(3.6.3)

$$\frac{1}{V_{ASCBE}} = \frac{P_{scbe2}}{L_{eff}}\exp\left(\frac{-P_{scbe1}\,litl}{V_{ds} - V_{dseff}}\right)$$

The Vdseff expression is written as:

(3.6.4)

$$V_{dseff} = V_{dsat} - \frac{1}{2}\left(V_{dsat} - V_{ds} - \delta + \sqrt{(V_{dsat} - V_{ds} - \delta)^2 + 4\delta V_{dsat}}\right)$$

The expression for Vdsat is that given under Section 3.4. The parameter δ is an extracted constant. The dependence of Vdseff on Vds is given in Figure 3-3. The Vdseff function follows Vds in the linear region and tends to Vdsat in the saturation region. Figure 3-4 shows the effect of δ on the transition region between linear and saturation regimes.

Exhibit

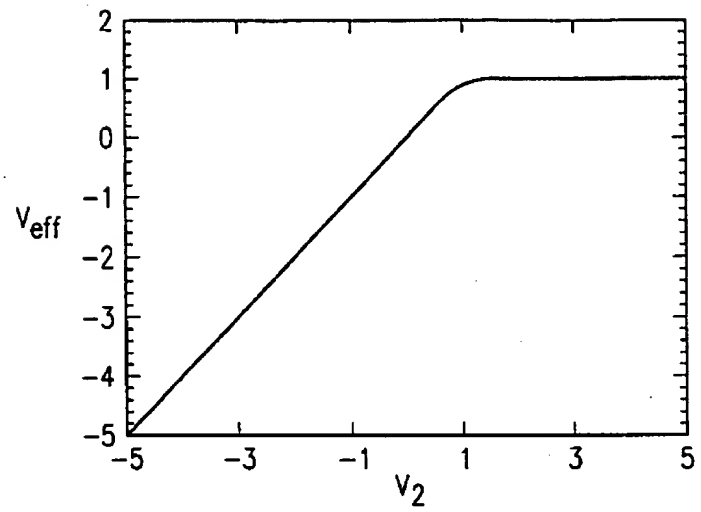

FIG. 1
(PRIOR ART)

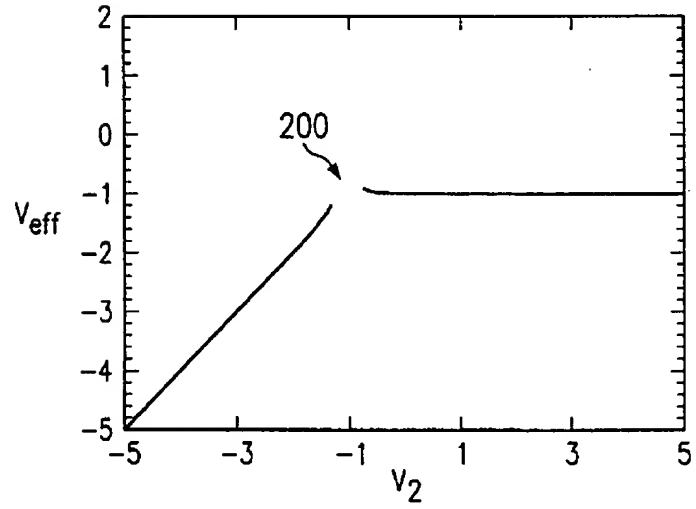

FIG. 2
(PRIOR ART)

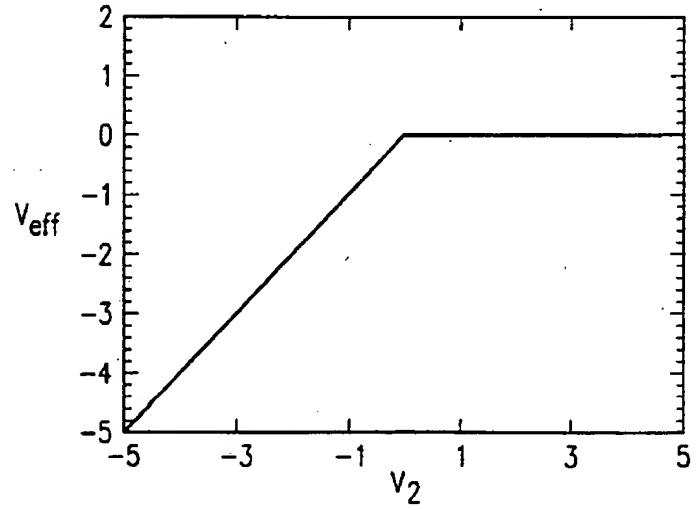

FIG. 3
(PRIOR ART)